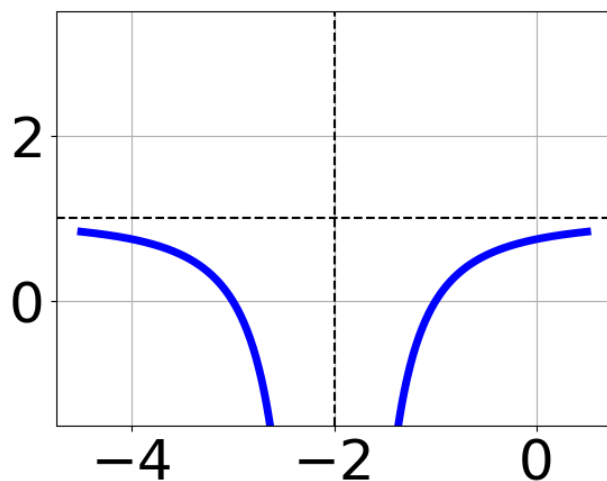1. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{(x-2)^2} + 1$

B. $f(x) = \dfrac{-1}{x+2} + 1$

C. $f(x) = \dfrac{-1}{(x+2)^2} + 1$

D. $f(x) = \dfrac{1}{x-2} + 1$

E. None of the above

2. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{8}{-4x+2} + 2 = \frac{-3}{-32x+16}$$

A. $x_1 \in [1, 2.3]$ and $x_2 \in [1.83, 2.12]$

B. All solutions lead to invalid or complex values in the equation.

C. $x_1 \in [0.5, 1.2]$ and $x_2 \in [1.49, 1.64]$

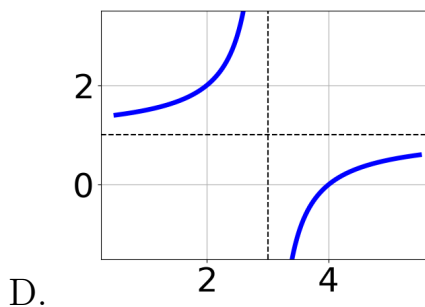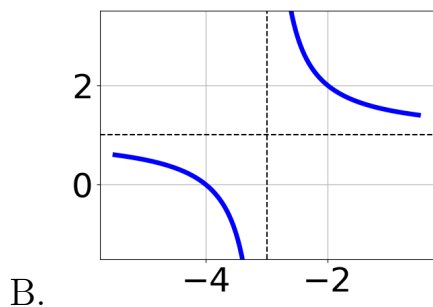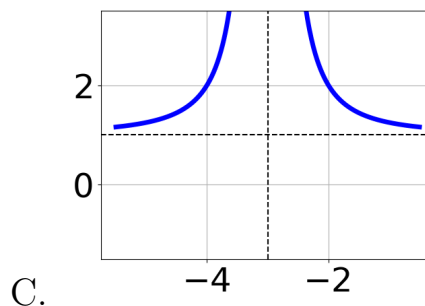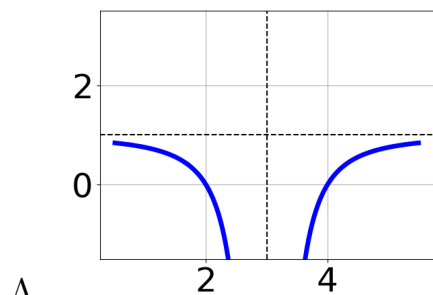D. $x \in [1.55, 2.55]$

E. $x \in [0.5, 1.2]$

3. Determine the domain of the function below.

$$f(x) = \frac{3}{30x^2 + 10x - 20}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.3, 0.2]$ and $b \in [0.2, 1.4]$

B. All Real numbers except $x = a$, where $a \in [-1.3, 0.2]$

C. All Real numbers except $x = a$, where $a \in [-25.6, -24.6]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-25.6, -24.6]$ and $b \in [22.6, 25.6]$

E. All Real numbers.

4. Choose the graph of the equation below.

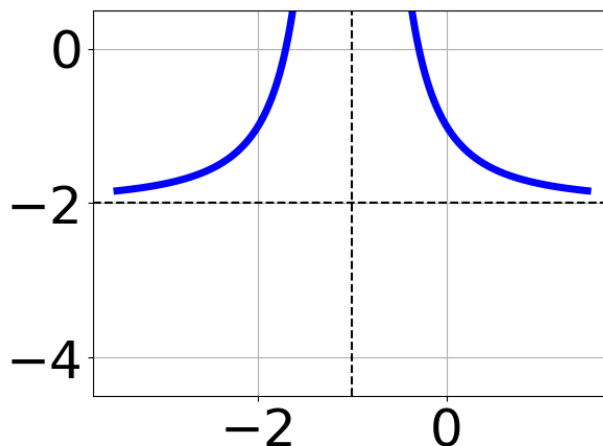$$f(x) = \frac{-1}{x - 3} + 1$$

A.

C.

B.

D.

E. None of the above.

5. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{7x}{-3x-5} + \frac{-4x^2}{-9x^2-36x-35} = \frac{7}{3x+7}$$

A. $x \in [-1.9, 5]$

B. $x_1 \in [-4.3, -2.9]$ and $x_2 \in [-2.45, -0.81]$

C. $x \in [-3.2, -0.7]$

D. $x_1 \in [-4.3, -2.9]$ and $x_2 \in [-0.67, 1.13]$

E. All solutions lead to invalid or complex values in the equation.

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6. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{(x-1)^2} - 2$

B. $f(x) = \dfrac{-1}{x-1} - 2$

C. $f(x) = \dfrac{1}{x+1} - 2$

D. $f(x) = \dfrac{1}{(x+1)^2} - 2$
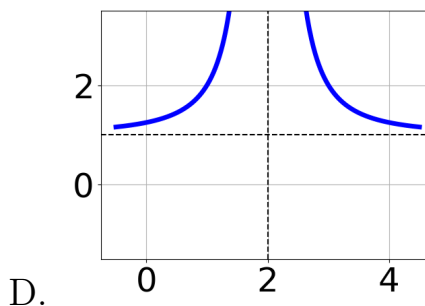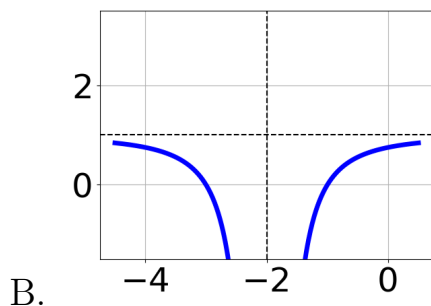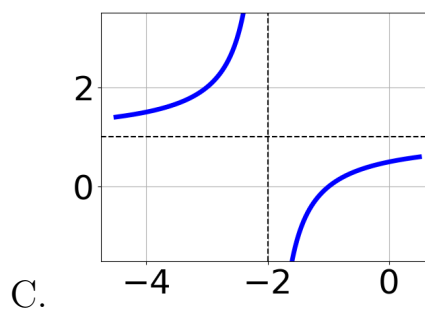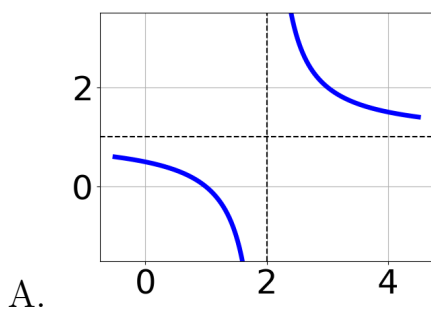
E. None of the above

7. Determine the domain of the function below.

$$f(x) = \frac{3}{12x^2 - 29x + 15}$$

A. All Real numbers except $x = a$, where $a \in [11.1, 14]$

B. All Real numbers except $x = a$, where $a \in [-1.9, 1.2]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.9, 1.2]$ and $b \in [1.3, 3.6]$

D. All Real numbers.

E. All Real numbers except $x = a$ and $x = b$, where $a \in [11.1, 14]$ and $b \in [12.8, 15.3]$

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8. Choose the graph of the equation below.

$$f(x) = \frac{1}{(x+2)^2} + 1$$

A.

C.

B.

D.

E. None of the above.

9. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{2x}{-7x-7} + \frac{-2x^2}{49x^2 + 98x + 49} = \frac{-5}{-7x-7}$$

A. $x_1 \in [-2.08, -1.92]$ and $x_2 \in [-1.06, -0.56]$

B. $x \in [-1.07, -0.9]$

C. $x_1 \in [-2.08, -1.92]$ and $x_2 \in [-1.23, -1.13]$

D. All solutions lead to invalid or complex values in the equation.

E. $x \in [-1.4, -1.1]$

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10. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-4}{8x-6} + 9 = \frac{9}{64x-48}$$

A. $x \in [-0.18, 1.82]$

B. $x_1 \in [-2.68, 0.32]$ and $x_2 \in [0.55, 0.83]$

C. $x_1 \in [-0.18, 2.82]$ and $x_2 \in [0.84, 1.26]$

D. All solutions lead to invalid or complex values in the equation.

E. $x \in [-2.68, 0.32]$